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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/418,562	10/15/1999	JACOBUS C. HAARTSEN	040070-549	9055

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EXAMINER	
ODOM, CURTIS B	

ART UNIT	PAPER NUMBER
2634	12

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/418,562	HAARTSEN, JACOBUS C.	
	Examiner	Art Unit	
	Curtis B. Odom	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 February 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8,10,12-23,25 and 27-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-8,12,14,16-23,27 and 29* is/are rejected.

7)☐ Claim(s) *10,13,15,25,28 and 30* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 October 1999* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 2/10/04 have been fully considered but they are not persuasive for the following reasons: Applicant states if one were to equate the second frequency of Bergstrom to the claimed substitute hop channel of the applicant, nowhere in Bergstrom is there any disclosure or suggestion that the second frequency is selected using the claimed steps (i.e., determining an index value and using the index value to step through the allowable channels. The applicant also states that nowhere in Bergstrom is there any disclosure or suggestion of the steps of determining an index value as a function of the time-varying parameter, designating one of the allowable hop channels in the sequence of hop channels as a first hop channel; determining the ith allowable hop channel starting from the first hop channel; and using the ith allowable hop channel as the substitute hop channel.

However, Bergstrom et al. discloses a first frequency (channel) is used to communicate data and if the first frequency is a prohibited (forbidden) channel, then a second frequency (substitute channel) is chosen using a matrix containing information on the available hop frequencies (column 6, lines 5-28, wherein the previous measurement represents information in the state matrix). The device determines a status (index) value (SNR or bit error measurement) which is a function of noise or interference (wherein noise and interference are time-varying parameters) on the channel (column 2, line 54-column 3, line 13). This value is then used to step through available hop frequencies (channels) starting at a first frequency (first hop channel)

using information stored in matrix and conclude whether the frequencies are forbidden or allowable hop channels from the available frequencies (column 3, lines 13-26). A new frequency (ith allowable hop channel) is determined for use a substitute hop channel from the allowable hop channels using information from the matrix (column 3, lines 27-29). It is obvious that the new frequency would be the next allowable hop channel or frequency obtained from the matrix using the previous measurement (SNR or bit errors) which gives disturbance free communication as stated by Bergstrom et al. (column 6, lines 5-26). This new frequency will is used as the second frequency (substitute hop channel) if a first frequency is deemed a prohibited frequency

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-8, 12, 14, 16-23, 27, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bergstrom et al. (previously cited in Office Action 11/10/03)

Regarding claim 1, Bergstrom et al. discloses a method of selecting a hop channel for use in a channel hopping communication system that includes a sequence of hop channels, wherein the sequence comprises a set of forbidden hop channels and a remaining set of allowable hop channels (column 2, lines 62-65), wherein the channels with interference are forbidden hop channels, the method comprising:

selecting (column 2, lines 4-16) a hop channel from the sequence as a function of a present phase; and

if the selected hop channel is a forbidden hop channel then using a time-varying parameter to select a substitute hop channel from the set of allowable channels (column 2, lines 20-27 and column 3, lines 27-33) by performing the steps of:

determining an index value, i, as a function of the time-varying parameter (column 3, line 5-13, wherein the status value (SNR or bit error measurement) is an index value);

designating one of the allowable hop channels in the sequence of hop channels as a first hop channel (column 6, lines 5-15), wherein f_1 is the fixed frequency (first hop channel) on which the characteristic signal is sent;

starting at the first hop channel, processing the sequence of hop channels to determine an ith allowable hop channel in the sequence of hop channels (column 6, lines 5-25),

selecting the ith allowable hop channel for use as a substitute channel (column 6, lines 5-25, wherein the second frequency is the ith allowable hop channel chosen from a state matrix X which contains the processed sequence of ith allowable hop channels (column 2, line 62-column 3, line 29).

Bergstorm et al. does not disclose if the selected hop channel is an allowable hop channel, then using the selected hop channel for communication during the present phase and using the substitute hop channel for communication during the present phase

However, Bergstrom et al discloses that depending on a status value, the selected hop channel or the substitute hop channel would be used for transmission (column 2, lines 21-27). Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made that if the state value met a certain specification, then the selected hop channel would be an allowable hop channel and used for communication during a present phase, but if the status value did not meet a certain specification, then the substitute hop channel would be used for communication during the present phase.

Regarding claim 2, which inherits the limitations of claim 1, Bergstrom et al. does not disclose the time-varying parameter is a clock value. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the clock value could have been the time-varying parameter from which a measurement is taken to produce a status value (index value). Thus, using a clock signal as the time-varying parameter is deemed a design choice and does not constitute patentability.

Regarding claim 3, which inherits the limitations of claim 1, Bergstrom et al. does not disclose the time-varying parameter and the present phase are derived from the same clock value. However, it would have been obvious to one skilled in the art at the time the invention was made to derive the time-varying parameter and the present phase from the same clock value to eliminate phase offset from processes in the device.

Regarding claim 4, which inherits the limitations of claim 1, Bergstrom et al. further does not disclose the time-varying parameter is a randomly selected value. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the time-varying parameter could have been a randomly selected value, in the case of Bergstrom et al. the parameter is noise or interference. Thus, the time-varying parameter being randomly selected does not constitute patentability.

Regarding claim 5, which inherits the limitations of claim 1, Bergstrom et al. does not disclose the time-varying parameter is a pseudo-randomly selected value. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the time-varying parameter could have been a pseudo-randomly selected value, in the case of Bergstrom et al. the parameter is noise or interference. Thus, the time-varying parameter being pseudo-randomly selected does not constitute patentability.

Regarding claim 6, which inherits the limitations of claim 1, Bergstrom et al. discloses at least one of the forbidden channels is associated with received interference from a jammer (column 2, lines 11-27).

Regarding claim 7, which inherits the limitations of claim 1, Bergstrom et al. discloses at least one of the forbidden hop channels is reserved for used by a communication system that is not the channel hopping communication system (column 1, lines 13-21, wherein the prohibited frequency is occupied by a jammer caused by a local TV station).

Regarding claim 8, which inherits the limitations of claim 1, Bergstrom et al. discloses dynamically determining the set of forbidden hop channels, whereby the set of the forbidden hop channels varies over time (column 2, lines 62-65 and column 3, lines 16-26).

Regarding claim 12, which inherits the limitations of claim 1, Bergstrom et al. discloses the first hop channel is the first hop channel in the sequence of hop channels (column 6, lines 5-15), wherein f_1 is the first hop channel.

Regarding claim 14, which inherits the limitations of claim 1, Bergstrom et al. discloses starting at the first hop channel and continuing with each successive hop channel in the sequence of hop channels, determining wherein the hop channel is an allowable hop channel (column 6,

lines 5-15 and column 2, line 62-column 3, line 29), wherein each fixed frequency (f_1-f_n) is processed and the values are stored in a state matrix for determining allowable hop channels; and

stopping when an ith allowable hop channel has been identified in the sequence of hop channels (column 6, lines 5-25), wherein if the first frequency is an allowable hop channel, it is used for communication, but if otherwise, a second frequency is found from the state matrix containing the allowable hop channels which can be used for communication.

Regarding claim 16, Bergstrom et al. discloses a hop channel selector (Fig. 4) for use in a channel hopping communication system that includes a sequence of hop channels, wherein the sequence comprises a set of forbidden hop channels and a remaining set of allowable hop channels (column 2, lines 62-65), wherein the channels with interference are forbidden hop channels, the hop channel selector comprising:

logic configured to select (Fig. 4, column 2, lines 4-16) a hop channel from the sequence as a function of a present phase; and

logic configured to use a time-varying parameter to select a substitute hop channel from the set of allowable hop channels (Fig. 4, column 2, lines 20-27 and column 3, lines 27-33), wherein logic configured to use a time-varying parameter to select a substitute hop channel from the set of allowable hop channels comprises:

logic configured to determine an index value, i, as a function of the time-varying parameter (column 3, line 5-13, wherein the status value (SNR or bit error measurement) is an index value);

logic configured to designate one of the allowable hop channels in the sequence of hop channels as a first hop channel (column 6, lines 5-15), wherein f_1 is the fixed frequency (first hop channel) on which the characteristic signal is sent;

logic configured to process the sequence of hop channels, starting at the first hop channel, to determine an ith allowable hop channel in the sequence of hop channels (column 6, lines 5-25),

logic configured to select the ith allowable hop channel for use as a substitute channel (column 6, lines 5-25, wherein the second frequency is the ith allowable hop channel chosen from a state matrix X which contains the processed sequence of ith allowable hop channels (column 2, line 62-column 3, line 29).

Bergstrom et al. does not disclose logic configured to use the selected hop channel for communication during the present phase if the selected hop channel is an allowable hop channel and to use the substitute hop channel for communication during the present phase if the selected hop channel is not an allowable hop channel.

However, Bergstrom et al discloses that depending on a status value, the selected hop channel or the substitute hop channel would be used for transmission (column 2, lines 21-27). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that if the state value met a certain specification, then the selected hop channel would be an allowable hop channel and used for communication during a present phase, but if the status value did not meet a certain specification, then the substitute hop channel would be used for communication during the present phase.

Regarding claim 17, which inherits the limitations of claim 16, Bergstrom et al. does not disclose the time-varying parameter is a clock value. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the clock value could have been the time-varying parameter from which a measurement is taken to produce a status value (index value). Thus, using a clock signal as the time-varying parameter is deemed a design choice and does not constitute patentability.

Regarding claim 18, which inherits the limitations of claim 16, Bergstrom et al. does not disclose the time-varying parameter and the present phase are derived from the same clock value. However, it would have been obvious to one skilled in the art at the time the invention was made to derive the time-varying parameter and the present phase from the same clock value to eliminate phase offset from processes in the device.

Regarding claim 19, which inherits the limitations of claim 16, Bergstrom et al. does not disclose the time-varying parameter is a randomly selected value. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the time-varying parameter could have been a randomly selected value, in the case of Bergstrom et al. the parameter is noise or interference. Thus, the time-varying parameter being randomly selected does not constitute patentability.

Regarding claim 20, which inherits the limitations of claim 16, Bergstrom et al. does not disclose the time-varying parameter is a pseudo-randomly selected value. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the time-varying parameter could have been a pseudo-randomly selected value, in the case of

Bergstrom et al. the parameter is noise or interference. Thus, the time-varying parameter being psuedo-randomly selected does not constitute patentability.

Regarding claim 21, which inherits the limitations of claim 16, Bergstrom et al. discloses at least one of the forbidden channels is associated with received interference from a jammer (column 2, lines 11-27).

Regarding claim 22, which inherits the limitations of claim 16, Bergstrom et al. discloses at least one of the forbidden hop channels is reserved for used by a communication system that is not the channel hopping communication system (column 1, lines 13-21, wherein the prohibited frequency is occupied by a jammer caused by a local TV station).

Regarding claim 23, which inherits the limitations of claim 16, Bergstrom et al discloses dynamically determining the set of forbidden hop channels, whereby the set of the forbidden hop channels varies over time (column 2, lines 62-65 and column 3, lines 16-26).

Regarding claim 27, which inherits the limitations of claim 16, Bergstrom et al. discloses the first hop channel is the first hop channel in the sequence of hop channels (column 6, lines 5-15), wherein f_1 is the first hop channel.

Regarding claim 29, which inherits the limitations of claim 16, Bergstrom et al. discloses logic configured to determine, starting at the first hop channel and continuing with each successive hop channel in the sequence of hop channels, whether the hop channel is an allowable hop channel (column 6, lines 5-15 and column 2, line 62-column 3, line 29), wherein each fixed frequency (f_1-f_n) is processed and the values are stored in a state matrix for determining allowable hop channels; and

stop when an ith allowable hop channel has been identified in the sequence of hop channels (column 6, lines 5-25), wherein if the first frequency is an allowable hop channel, it is used for communication, but if otherwise, a second frequency is found from the state matrix containing the allowable hop channels which can be used for communication.

Allowable Subject Matter

4. Claims 10, 13, 15, 25, 28, and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Paul (U. S. Patent No. 4, 780, 885) discloses separating hop frequencies as allowable (quiet) or forbidden (noisy) hop frequencies.

6. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Curtis B. Odom whose telephone number is 703-305-4097. The examiner can normally be reached on Monday- Friday, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Curtis Odom
April 23, 2004

STEPHEN CHIN
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